

What is claimed is:

1. An introducing apparatus comprising:

a tubular sheath extending from a sheath proximal end to a sheath distal end, the sheath sized to receive a dilator therethrough;

5 the dilator extending from a dilator proximal end to a dilator distal end;

a needle disposed within the dilator, the needle extending from a needle proximal end to a needle distal end and including an intermediate portion therebetween, at least a portion of the needle is at least as flexible as the dilator;

10 the needle distal end extending out of the dilator distal end in a first position, the needle distal end retracted within the dilator distal end in a second position; and

means for retracting the needle distal end within the dilator.

2. The introducing apparatus as recited in claim 1, wherein the sheath is
15 separable without damage to an instrument inserted therethrough.

3. The introducing apparatus as recited in claim 1, wherein the needle distal end is more flexible than the dilator.

20 4. The introducing apparatus as recited in claim 1, wherein the needle distal end has the same or more flexibility as the dilator.

5. The introducing apparatus as recited in claim 1, wherein the intermediate portion of the needle comprises a flexible coil.

6. The introducing apparatus as recited in claim 1, wherein the intermediate
5 portion and the needle distal end are flexible, and the intermediate portion and the needle distal end are formed of a unitary structure of nitinol.

7. The introducing apparatus as recited in claim 1, wherein the needle
proximal end includes a member sized and shaped to prevent re-extension of the
10 needle.

8. The introducing apparatus as recited in claim 1, further comprising a locking mechanism configured to temporarily lock the sheath with the dilator.

9. The introducing apparatus as recited in claim 1, wherein the dilator further
15 includes a blood flashback chamber.

10. The introducing apparatus as recited in claim 1, further including a valve coupled with the sheath.

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11. The introducing apparatus as recited in claim 10, wherein the valve comprises a sliding valve assembly slidably engaged with the at least one tab, the sliding valve adapted to slide from a first position to a second position, in the first

position the sliding valve disposed through the longitudinal axis of the sheath, in the second position the sliding valve disposed away from the longitudinal axis of the sheath.

5 12. An introducing apparatus comprising:

an elongate tubular sheath extending from a sheath proximal end to a sheath distal end, the sheath sized to receive a dilator therethrough;

the dilator extending from a dilator proximal end to a dilator distal end;

10 a needle disposed within the dilator, the needle extending from a needle proximal end to a needle distal end and including an intermediate portion therebetween, at least a portion of the needle is flexible;

the needle distal end extending out of the dilator distal end in a first position, the needle distal end retracted within the dilator distal end in a second position; and

15 a needle retraction mechanism associated with the needle and the dilator, and the needle is retractably coupled with the dilator.

13. The introducing apparatus as recited in claim 12, wherein the needle includes a catch sized and shaped to prevent extension of the distal end of the
20 needle from the dilator distal end.

14. The introducing apparatus as recited in claim 12, wherein the needle distal end is more flexible than the dilator.

15. The introducing apparatus as recited in claim 12, wherein the dilator further includes a blood flashback chamber and a gas permeable filter.

16. The introducing apparatus as recited in claim 12, further including a valve
5 coupled with the sheath.

17. The introducing apparatus as recited in claim 16, wherein the valve comprises a sliding valve assembly slidingly engaged with the at least one tab, the sliding valve adapted to slide from a first position to a second position, in the first
10 position the sliding valve disposed through the longitudinal axis of the sheath, in the second position the sliding valve disposed away from the longitudinal axis of the sheath.

18. A method comprising:
15 disposing a needle within a dilator;
retractably coupling a needle with a dilator, the dilator extending to a dilator distal end, where the needle extends to a needle distal end and at least a portion of the needle is more flexible than the dilator, and the needle distal end extends beyond the dilator distal end in a first position; and
20 disposing the needle and dilator within a sheath to form an introducing apparatus.

19. The method as recited in claim 18, further comprising retracting the needle distal end within the dilator.

20. The method as recited in claim 18, further comprising retaining the dilator with the sheath and retracting the needle distal end within the dilator.

21. The method as recited in claim 19, further comprising preventing re-
5 extension of the needle from the dilator.

22. The method as recited in claim 18, further comprising removing the dilator and needle from the sheath, inserting an instrument through the sheath, and separating the sheath from the instrument without damage to the instrument.

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23. The method as recited in claim 18, further comprising coupling a valve with the sheath.

24. The method as recited in claim 18, further comprising coupling a coil
15 between a position adjacent to the needle distal end and a needle proximal end to form a flexible portion therebetween.